Message

From: Campbell-Dunbar, Shawneille [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=9B7875885956406285ACBDC4F03C5F02-CAMPBELL-DUNBAR, SHAWNELLE]
Sent: 6/9/2017 7:21:11 PM
To: Walker, Mary [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=Walker, Mary S.]
CC: Allenbach, Becky [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=fd8d7185973c44268441863f02a769d1-Allenbach, Becky]; Elliott, Richard [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=f3312fca56324a0a896abefaa0bbc981-Elliott, Richard]; Hall, Renea [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=7e6fa15b05c0453da3cae5dacdb93574-Hall, Renea]
Subject: FW: Article
Attachments: 170607 letter to Ms. Holman from CFPUA NCDEQ-river water quality.pdf

Hi Mary,

Please find a letter from CFPUA to NC concerning this issue. Bob shared this after our discussion with him a few minutes ago.

From: Midgette, Robert [mailto:robert.midgette@ncdenr.gov]
Sent: Friday, June 9, 2017 3:16 PM
To: Campbell-Dunbar, Shawneille <Campbell-Dunbar.Shawneille@epa.gov>
Cc: Jessica Godreau <Jessica.godreau@ncdenr.gov>
Subject: FW: Article

FYI

R.W. (Bob) Midgette, P.E.
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Department of Environmental Quality

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Robert.Midgette@ncdenr.gov

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From: Cox, Heidi
Sent: Wednesday, June 07, 2017 5:04 PM
To: Godreau, Jessica <jessica.godreau@ncdenr.gov>; Midgette, Robert <robert.midgette@ncdenr.gov>
Subject: FW: Article

An interesting article in the Star News that was shared with me. I thought you would want to be aware. Also, I have been provided a copy of a letter CFPUA has sent to Ms. Holman. It is attached for your information.

Heidi

Heidi Lane Cox
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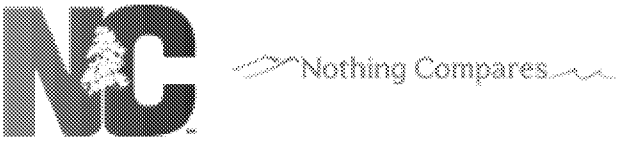

From: Beth Eckert [mailto:Beth.Eckert@cfpua.org]
Sent: Wednesday, June 07, 2017 1:02 PM
To: Cox, Heidi <heidi.cox@ncdenr.gov>
Subject: Fwd: Article

FYI

Beth Eckert

Begin forwarded message:

> **From:** William Roy <William.Roy@cfpua.org>
> **Date:** June 7, 2017 at 12:39:29 PM EDT
> **To:** Beth Eckert <Beth.Eckert@cfpua.org>, Jill Deaney <Jill.Deaney@cfpua.org>
> **Subject: Article**
>
> You are probably already aware, but this will probably be in tomorrow's paper.

Toxin taints CFPUA drinking water

Wednesday

Posted at 10:31 AM Updated at 11:17 AM

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Utility can't filter out chemical produced upriver at Fayetteville plant

By Vaughn Hagerty StarNews Correspondent

WILMINGTON -- A chemical replacement for a key ingredient in Teflon linked to cancer and a host of other ailments has been found in the drinking water system of the Cape Fear Public Utility Authority (CFPUA), which cannot filter it.

Known commercially as GenX, the contaminating compound is made by the Chemours Co. at Fayetteville Works, a 2,150-acre industrial site straddling the Cumberland-Bladen county line along the Cape Fear River, about 100 miles upstream from Wilmington.

Other water systems that tap the Cape Fear, including some that serve portions of Brunswick and Pender counties, likely have GenX present as well -- though only CFPUA has been tested.

"My estimate is that about 250,000 people are affected in the three counties," said Detlef Knappe, a professor at N.C. State University and one of the researchers who traced the toxin from Fayetteville to Wilmington.

Chemours and DuPont, which formed Chemours in 2015 from business units including the GenX manufacturer, have produced GenX since 2009. That was four years after DuPont agreed to phase out a chemical called C8 and paid a $16.5 million U.S. EPA fine and settlement for failing to release studies showing C8 may cause health problems. In February, the companies settled a class-action lawsuit involving C8 water contamination in the mid-Ohio Valley for $670.7 million.

In 2012, a research team detected GenX in the Cape Fear downriver from Fayetteville Works. Other teams found it again in 2013-14 and as recently as last December. Results of river water samples drawn last month are pending. Upriver from Fayetteville Works, none was found.

In a statement provided this week, Chemours officials said they are aware of the studies and that "additional water emissions abatement technology" was added to the Fayetteville Works plant in November 2013. That installation occurred more than three years prior to the latest confirmed discovery of GenX in the Cape Fear downstream from the plant. The company did not provide details on the abatement technology.

"Chemours is aware of the research reports on the Cape Fear River Watershed sampling, done between 2012 and December 2013. Additional water emissions abatement technology was completed and added to our Fayetteville operations site in November, 2013. Our polymerization processing aid, sometimes referred to as GenX, has been well characterized and undergone extensive safety evaluations. In addition, regulatory agencies required substantial data to be developed on the alternative chemistries that have been introduced. This data shows that the polymerization processing aid offers a favorable toxicological profile and very rapid bioelimination, combined with a manufacturing control system to minimize the potential for environmental releases and resulting exposures. Chemours continues to work collaboratively with all state and federal regulatory agencies, and we are committed to reducing our environmental footprint and minimizing any potential risks to our employees and the communities in which we operate."

-- Chemours statement on GenX

Key terms

Per- and polyfluoroalkyl substances (PFASs): Also known as fluorochemicals, this group of man-made compounds, including GenX and C8/PFOA, has been used for decades in a wide range of industrial processes and consumer products -- including Teflon, Scotchgard and some cosmetics. That ubiquity, along with the

substances' tendency to resist decomposition in the environment and elimination from the body, has sparked health concerns.

C8/PFOA: PFOA stands for perfluorooctanoic acid. Commonly called C8 because it has eight carbon atoms, PFOA was used in the manufacture of many products and is most commonly associated with DuPont's Teflon.

GenX: The product introduced by DuPont to replace PFOA. DuPont began offering GenX to its customers in 2009, after being granted a consent order from the EPA. The company describes GenX as being easier for humans to eliminate than PFOA and with a "favorable toxicological profile," a term that describes its toxicity and adverse health effects.

Parts-per-billion: Often described as micrograms per liter, one part per billion is equivalent to less than teaspoon of water in an Olympic-size swimming pool.

Health advisory: According to the EPA, "health advisories provide information on contaminants that can cause human health effects and are known or anticipated to occur in drinking water. EPA's health advisories are non-enforceable and non-regulatory and provide technical information to states agencies and other public health officials on health effects, analytical methodologies, and treatment technologies associated with drinking water contamination."

The Chemours Co.: Firm formed in 2015 from DuPont's "Performance Chemicals" division. Chemours is the official owner of the Fayetteville Works site, where GenX is made.

Fayetteville Works: A 2,150-acre manufacturing site along the Cape Fear River on the Bladen-Cumberland county line. Three companies have operations there -- Chemours, DuPont and Kuraray America.

The 2013-14 tests included sampling at various points in the water cleaning process at CFPUA's Sweeney Water Treatment Plant in Wilmington. At each step, researchers found GenX, along with a number of substances related to C8 and GenX but about which scientists know little aside from chemical structure. In some cases, these "novel" substances were seen at concentrations far exceeding that observed for GenX.

They continued to find GenX and the "novel" substances at the end of the treatment line, where freshly treated drinking water enters pipes feeding faucets throughout New Hanover County.

"Basically, there is no change in concentration as you go from raw to the finished water," said Knappe, who teaches in the department of civil, construction and environmental engineering at N.C. State and was one the 2013-14 researchers. "I'd be very surprised if something major has changed between December and now."

Knappe said CFPUA was the only water system tested, but he expected GenX also would be present in the Northwest Water Treatment in Brunswick and Pender County systems that receive water from the Lower Cape Fear Water and Sewer Authority.

'Trying to deal with it'

Frank Styers, chief operations officer of CFPUA, last week said the utility is aware of the most recent study and its findings.

"We think these type of studies are important and often lead to better regulation at the state and federal level," he said. "Our drinking water continues to meet all state and federal drinking water standards. We would

support proper regulation to improve water quality in the river or prevent compounds such as this from being discharged in the river."

The Cape Fear River accounts for about 80 percent of the water treated and distributed by CFPUA, Styers said. The remainder comes from groundwater. The utility has three systems that operate independently but can be combined when needed, such as in an emergency. The largest area is served by river water passing through the Sweeney plant and includes all of Wilmington, Monkey Junction, Wrightsboro, portions of Ogden and Flemington, a small community just off U.S. 421. GenX has not been found in groundwater.

About 200,000 people rely on CFPUA for drinking water.

Officials at the N.C. Department of Environmental Quality (NCDEQ), charged with regulating pollutants released by manufacturers such as Chemours, last week said the agency has seen the studies and plans to meet with Knappe this month before deciding how to proceed.

"Obviously, we need to look into it ourselves," said Julie Grzyb, the department's supervisor for complex permitting. "Unfortunately, with these unregulated contaminants, we have one hitting us after another and we're trying to deal with it."

The EPA, in response to emailed questions, wrote: "In its review of the GenX premanufacture submission (for approval to make it), EPA determined that the chemical could be commercialized if there were no releases to water."

The spokeswoman said the EPA would "check on this" when it was pointed out that the studies showed GenX was found in both the Cape Fear and CFPUA water. No response had been received by Wednesday.

Chemours, in its statement, wrote that it "is aware of the research reports on the Cape Fear River watershed sampling done between 2012 and December 2013. Additional water emissions abatement technology was completed and added to our Fayetteville operations site in November 2013.

"Our polymerization processing aid, sometimes referred to as GenX, has been well characterized and undergone extensive safety evaluations," the statement continued. "In addition, regulatory agencies required substantial data to be developed on the alternative chemistries that have been introduced. This data shows that the polymerization processing aid offers a favorable toxicological profile and very rapid bioelimination, combined with a manufacturing control system to minimize the potential for environmental releases and resulting exposures.

"Chemours continues to work collaboratively with all state and federal regulatory agencies, and we are committed to reducing our environmental footprint and minimizing any potential risks to our employees and the communities in which we operate."

No standards for GenX

Research has linked C8, the chemical GenX replaced, to risks for kidney and testicular cancer, liver damage and a number of other potentially serious health problems. Similar data for GenX is scarce, but the little that exists has some researchers concerned it may pose at least some of the same problems.

"I drink the water," Styers said. "I think that determination (regarding health risks) would better be made by state and federal regulators. These constituents (such as GenX) are not regulated. The EPA does have a process for evaluating emerging contaminants that is effective."

A fundamental challenge facing regulators is that no standards exist to set thresholds at which concentrations of GenX in drinking water are safe -- mainly because the chemical is relatively new and few studies on health effects are available.

EPA has established what it calls a "lifetime health advisory" for C8 in drinking water of 70 parts per trillion. The advisory is chiefly informational and not legally enforceable. C8 is also known generically as perfluorooctanoic acid (PFOA).

The average concentration of GenX measured at CFPUA's water intake on the Cape Fear in 2013-14 was 631 parts per trillion -- nine times the EPA advisory level for C8. Even so, that consideration would not trigger action on the part of state or federal regulators.

"The problem with these situations is these chemicals are emerging contaminants. We know they're in the water. We don't always know at what levels they are problematic or unsafe," said Connie Brower, an industrial hygiene consultant at NCDEQ's water resources division. "There are very few studies on the toxicity of the chemical and very little to go on to help us understand what level would be problematic."

State regulation of substances such as GenX typically means following the lead of EPA, Brower said. Standards for substances such as GenX take several years to establish. So for now, at least, there appears to be essentially no lead to follow.

"EPA has conducted monitoring in the Cape Fear River Watershed for perfluorinated compounds (a term for a large group of chemicals that includes C8 and GenX)," the EPA spokeswoman who provided responses wrote. "At this time, EPA Region 4 (which includes North Carolina) cannot advise on GenX compounds since the EPA does not have a drinking water advisory for these compounds."

'Nobody would know'

The lack of standards also means that the contamination from GenX and the "novel" substances in the CFPUA system and the Cape Fear likely would have gone undetected for some time if the team that included Knappe had not tested the water.

"There is essentially no literature on this ether compound (GenX) or on the other ether compounds," Knappe said.

Commercial labs in the United States currently are unable to test for GenX, Knappe said, so CFPUA cannot monitor the system's water for GenX on its own.

"There's no obligation (for Chemours) to inform a utility like Wilmington and tell them, 'You may find this new chemical in your water,' " Knappe said. "So since this chemical is new and isn't regulated, it isn't communicated to a public utility that the upstream discharge may contain this chemical. Without our work, basically nobody would know that this chemical is actually in the water."

Reverse osmosis -- including as part of a household water-filtration system – might be effective at filtering GenX and the other compounds from the water, Knappe said. But for a municipal system such as CFPUA,

such a step would cost millions of dollars to install and maintain and take years to accomplish. Instead, he insisted, Chemours should address the problem itself.

"I think the question that really should be asked is: Why should any utility have to deal with this in the first place? No drinking water provider should have to deal with this kind of a challenge if it can be dealt with at the source," Knappe said.

'Suspected human carcinogen'

To evaluate whether GenX is a safe alternative to C8, regulators consider a number of factors, including: the pace at which the body rids itself of the substance, the sorts of harm may it cause and how quickly it degrades in the environment.

On elimination from the body, researchers appear to agree with Chemours' contention that, in general, humans get rid of GenX much more quickly -- 3.5 years for C8 versus days for GenX.

Ailments potentially linked to C8 include kidney and testicular cancer, harm to fetuses and pregnant women, liver damage, a digestive tract inflammation called ulcerative cholitis and high cholesterol. Researchers said they are less certain about the health safety of GenX -- in large part because the few studies available seem to show it may contribute to some of the same issues tied to C8.

"GenX is indeed eliminated faster than C8/PFOA in rats and mice. However, human evidence is missing so we do not know if this will still hold," said Xindi Hu, a doctoral student at Harvard University Chan School and Environmental Science and Engineering and lead author of a major study on fluorochemicals in drinking water. "In terms of toxicity, the evidence of GenX is very scarce."

A study by the National Institute for Public Health and the Environment in the Netherlands, where Chemours has a plant in Dordecht, analyzed the available studies and concluded that "classification as a Category 2 carcinogen (a suspected human carcinogen) is justified " for GenX.

The last consideration -- persistence in the environment -- has been a major point of concern about C8 and other fluorochemicals, which tend to resist breaking down. While GenX is likely to persist in the environment like C8, N.C. State's Knappe said that, unlike C8, GenX likely would be flushed fairly quickly from the Cape Fear and affected water systems once it no longer gets into the river from the Fayetteville Works.

The EPA, in a 2009 document giving the go-ahead for DuPont and Chemours to manufacture GenX, expressed concerns about its safety, noting that it appeared to exhibit a number of the same health and environmental risks as C8 and similar compounds.

Teflon and pizza boxes

C8 and GenX belong to a large group of man-made chemicals known as per- and polyfluoroalkyl substances (PFASs). They also are referred to collectively as fluorochemicals. Used since at least the 1950s, fluorochemicals have proven to be invaluable in a variety of manufacturing processes. They're used to make products ranging from Teflon and Scotchgard to some popcorn bags and pizza boxes, as well as firefighting foams and electronic components.

The extensive use, coupled with the tendency of most fluorochemicals to persist in the environment, also has resulted in widespread dispersion, including in the bodies of most humans. One study concluded that more than 98 percent of Americans had some form of fluorochemical in their bloodstreams.

Knappe acknowledged that many people value the products fluorochemicals make possible, but he rejected the notion that health risks that result are a price worth paying for the benefits society derives.

"I would completely disagree with that because there's not a direct link between the convenience of a nonstick pan and having this chemical in the water," he said. "The more direct connection is how much profit is the company making in the process. If the fluorochemical manufacturer would spend a very small amount of their budget on treating their wastewater better, the same benefit could be derived from this chemical, GenX, without having the additional adverse health risks."

Contact the Metro desk at 910-343-2384 or Breakingnews@StarNewsOnline.com.

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